

10/521658 521, 658

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date  
29 January 2004 (29.01.2004)

PCT

(10) International Publication Number  
**WO 2004/010201 A2**

(51) International Patent Classification<sup>7</sup>: **G02B 26/12**

(21) International Application Number:  
**PCT/IB2003/002974**

(22) International Filing Date: 2 July 2003 (02.07.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
02078050.8 23 July 2002 (23.07.2002) EP  
03100876.6 2 April 2003 (02.04.2003) EP

(71) Applicant (for all designated States except US): **KONINKLIJKE PHILIPS ELECTRONICS N.V. [NL/NL]**, Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **VAN DER AA, Michael, A., H. [NL/NL]**; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). **JANSEN, Gerardus, L., M. [NL/NL]**; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). **NIJSSE, Gerard, J., P. [NL/NL]**; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). **SCHLEIPEN,**

**Johannes, J., H., B. [NL/NL]**; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). **CASTELIJN, Aukje, A., A. [NL/NL]**; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). **PENNING, Frank, C. [NL/NL]**; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL). **OPHEY, Willem, G. [NL/NL]**; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).

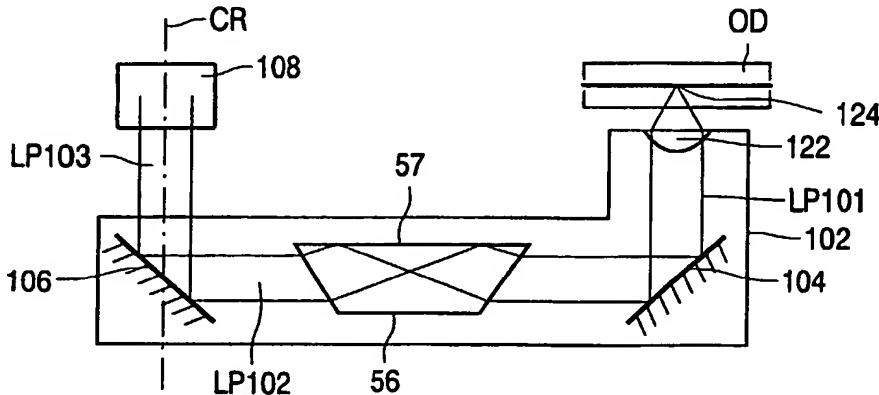
(74) Agent: **DEGUELLE, Wilhelmus, H., G.; Philips Intellectual Property & Standards, Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).**

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),

[Continued on next page]

(54) Title: OPTICAL SCANNING DEVICE



(57) Abstract: An optical scanning device for scanning an information layer of an optical record carrier and including a rotary arm (2; 102; 202; 302; 402; 502) which is arranged to swing about a rotation axis (CR) to alter an angular position of the rotary arm about the rotation axis; a detector arrangement (10) arranged separate from the rotary arm (2; 102; 202; 302; 402; 502) for detecting a radiation beam spot, the radiation beam spot (40; 140; 240; 340; 440; 540) having an angular disposition; a first reflective surface (4; 104; 204; 304; 404; 504) attached to the rotary arm (2; 102; 202; 302; 402; 502); a second reflective surface (6; 106; 206; 306; 406; 506) attached to the rotary arm (2; 102; 202; 302; 402; 502); a first light path (LP 1; LP 1 O 1; LP201; LP301; LP401; LP501) running from a location on the record carrier to said first reflective surface; a second light path (LP2; LP102; LP202; LP302; LP402; LP502) running from said first reflective surface to said second reflective surface; a third light path (LP3; LP103; LP203; LP303; LP403; LP503) running from said second reflective surface to said detector arrangement (10). The rotary arm includes at least one optical inversion element (52; 54; 56; 58; 64; 66) arranged such that a dependence between variation of the angular disposition of the radiation beam spot and variation of the angular position of the rotary arm is reduced.

WO 2004/010201 A2